

Analysis And Design Of UPFC Damping Stabilizers For Power System Stability Enhancement

Abido, M.A. Al-Awami, A.T. Abdel-Magid, Y.L.;Dept. of Electr. Eng., King Fahd Univ. of Pet. & Miner., Dhahran;

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King Fahd University of Petroleum & Minerals

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Summary

In this paper, the use of the supplementary controller of a unified power flow controller (UPFC) to damp low frequency oscillations in a weakly connected system is investigated. The potential of the UPFC supplementary controllers to enhance the dynamic stability is evaluated. Two different objective functions are proposed in this work for the controller design problem. The first objective is eigenvalue-based while the second is time domain-based objective function. The UPFC controller design problem is solved using particle swarm optimization (PSO) technique. The effectiveness of the proposed controllers on damping low frequency oscillations is tested and demonstrated through non-linear time simulation. In addition, a comparison between the objectives is carried out. It can be concluded that the time domain-based design improves greatly the system response under fault disturbances

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